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MS-7704

Mini-ITX Ver: 2.4

CPU:

INTEL-Sandy bridge LGA1155

System Chipset:

INTEL-Cougar Point H61

OnBoard Chipset:

HD Audio Codec:ALC892

uPD720202 USB3.0

LAN-RTL8111E

SIO:Fintek F71889AD

Flash ROM: 64 Mb SPI

Main Memory:

DDRIII (1066/1333MHz) * 2 (Dual Channel)

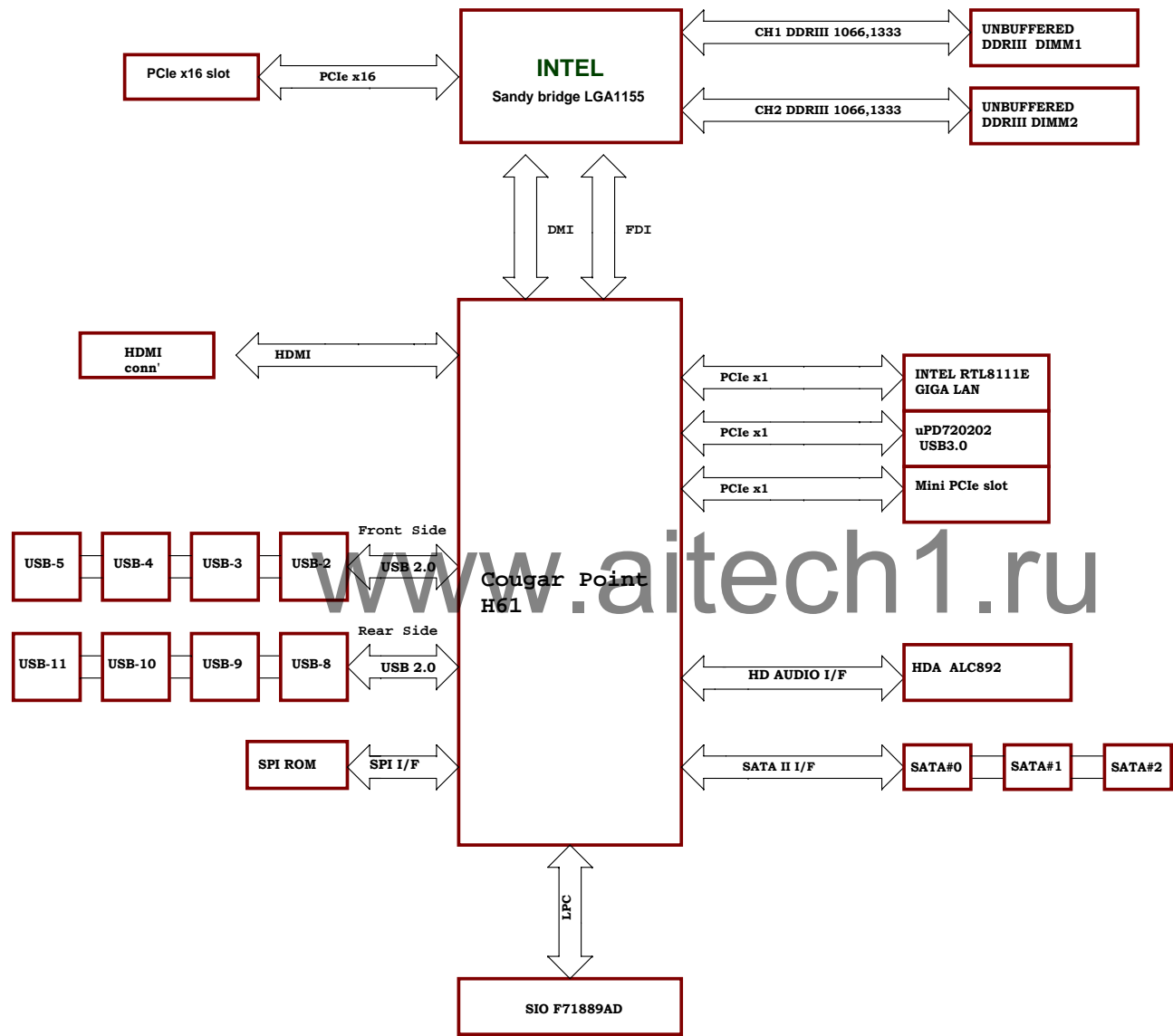
Expansion Slots:

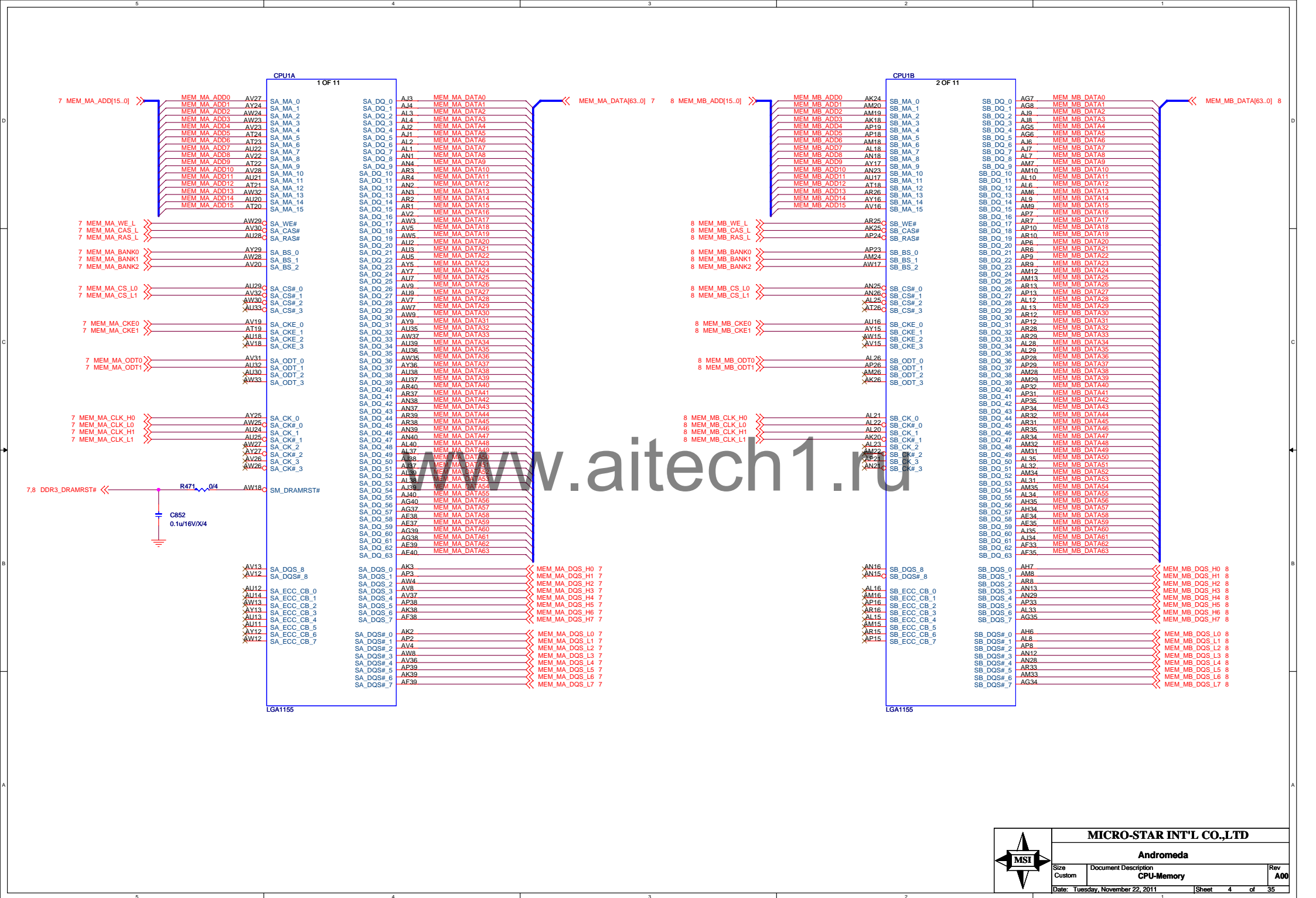
PCI Express (X16) Slot * 1

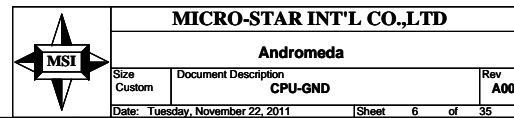
Mini PCIe(X1) Slot * 1

PWM:

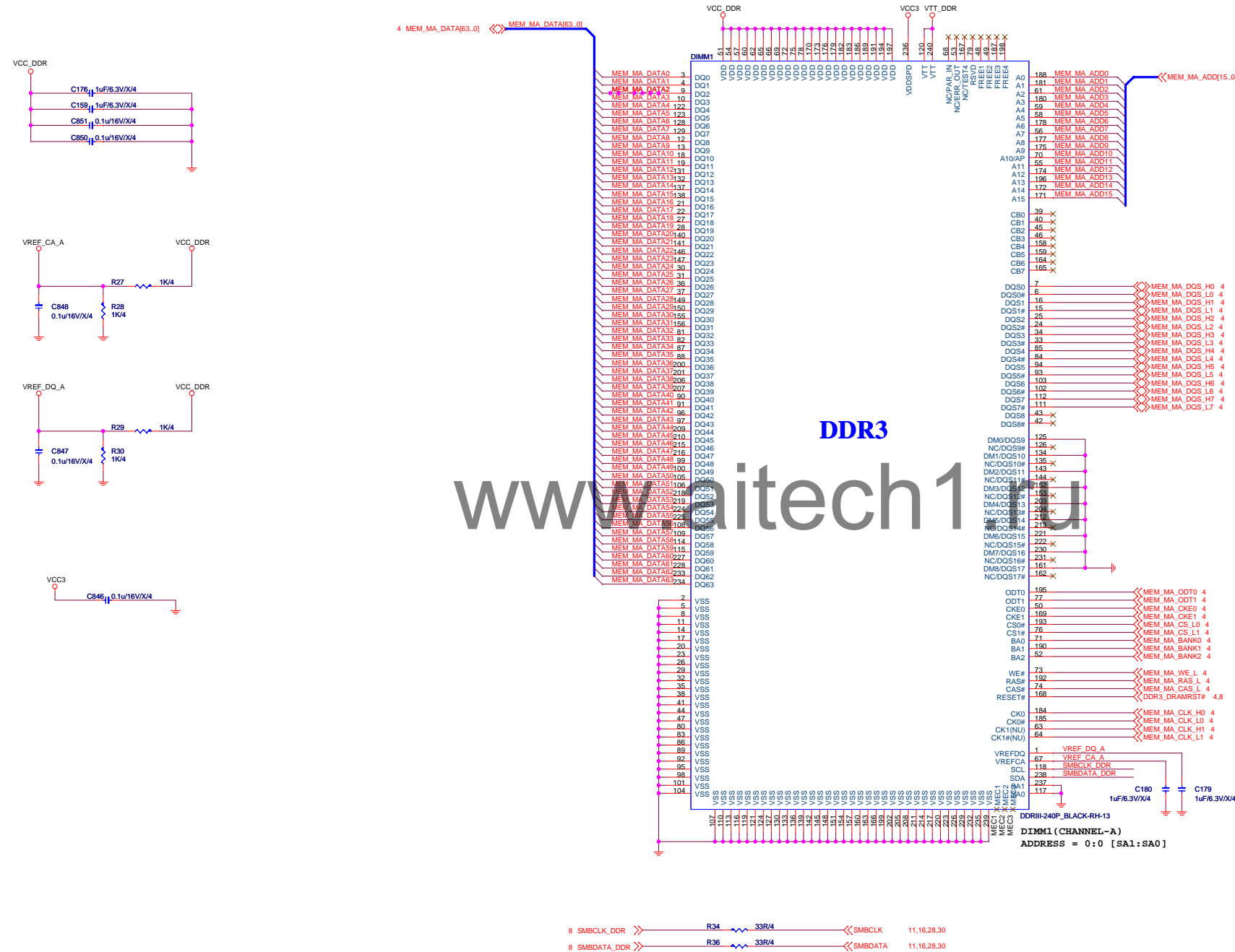
VRD12 ISL6364 4+1 Phase Dr.MOS



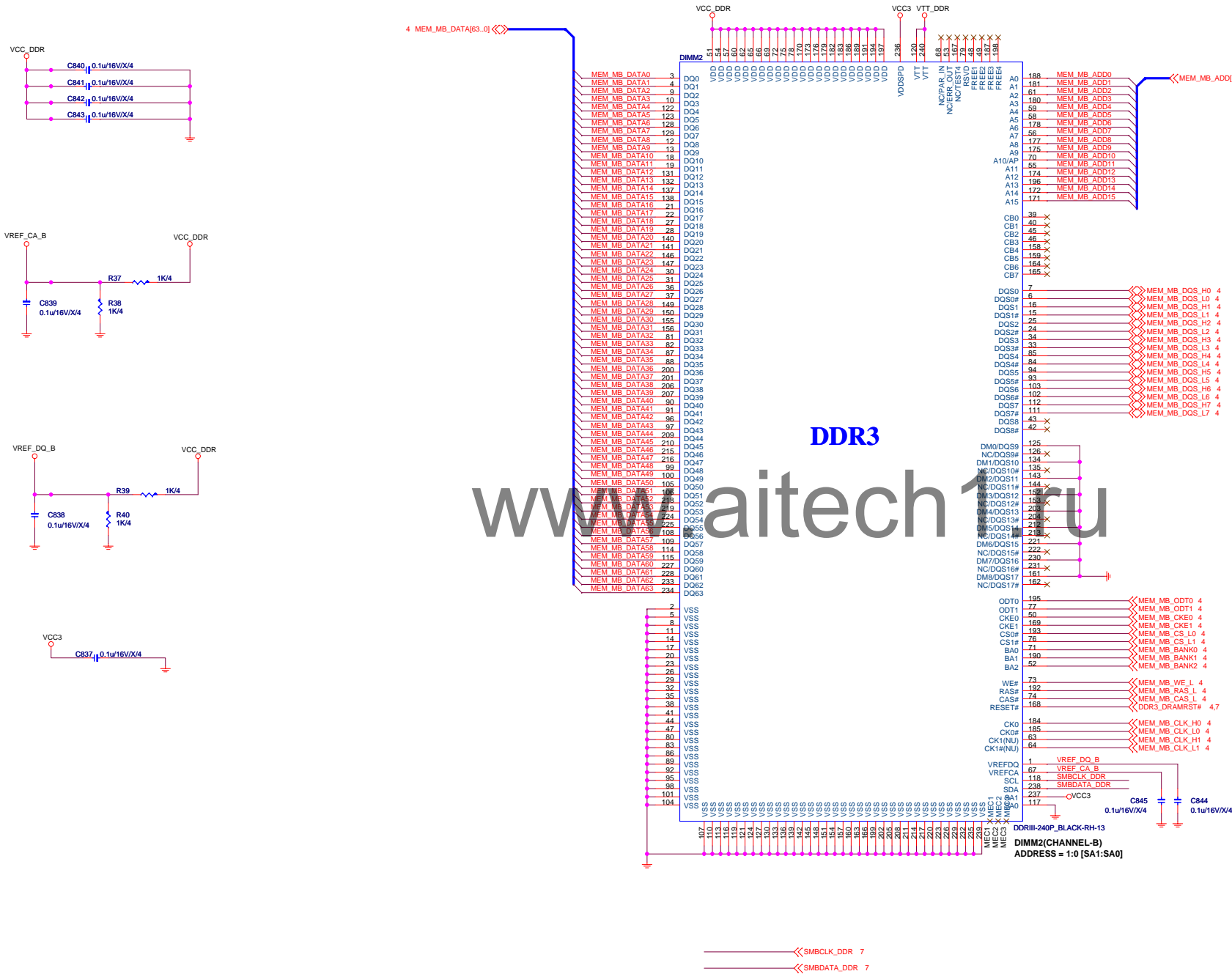


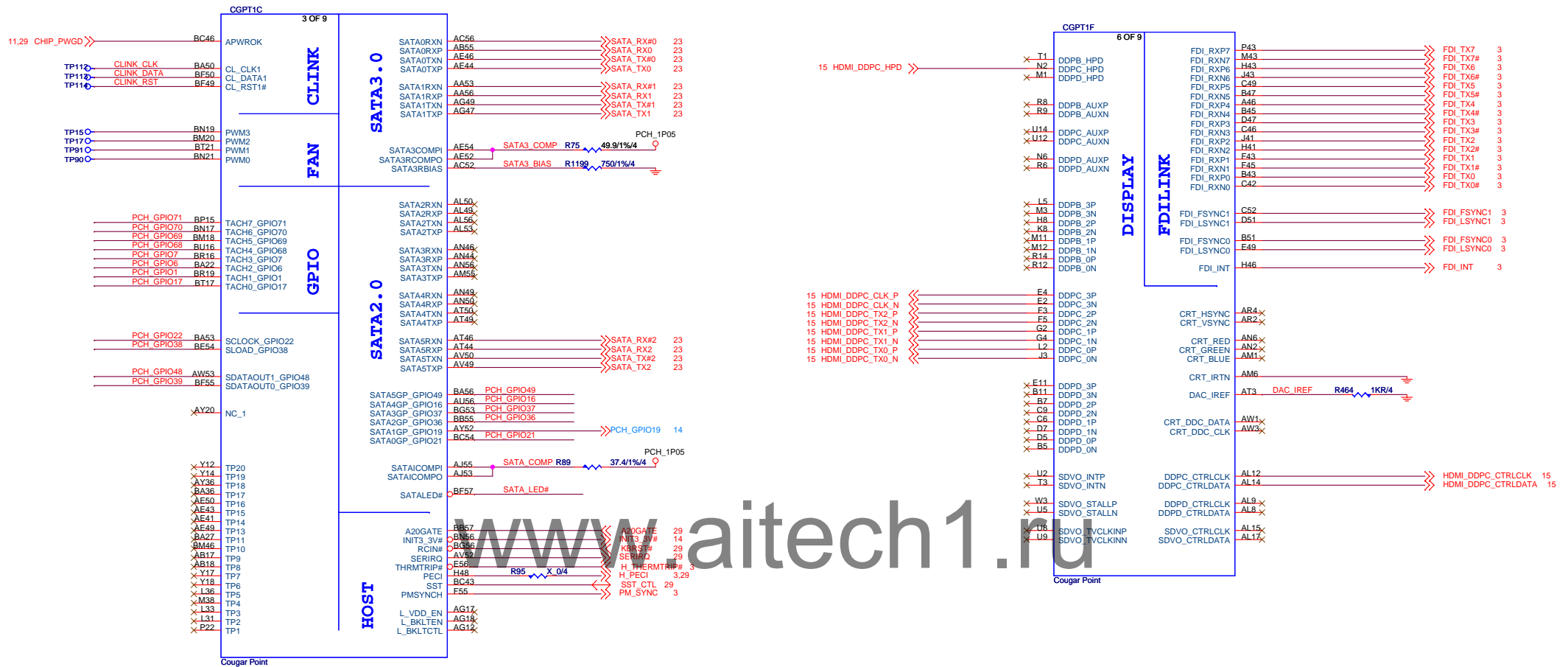


DDR3 DIMM1_A0

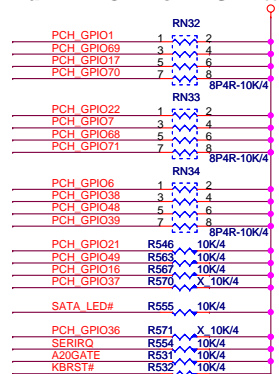


DDR3 DIMM2_B0

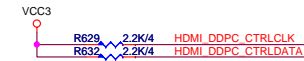
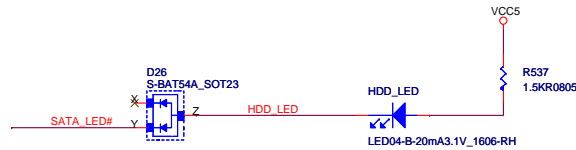




Pull HIGH for PCH



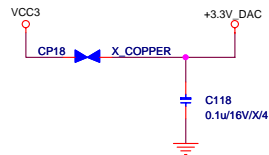
HDD LED



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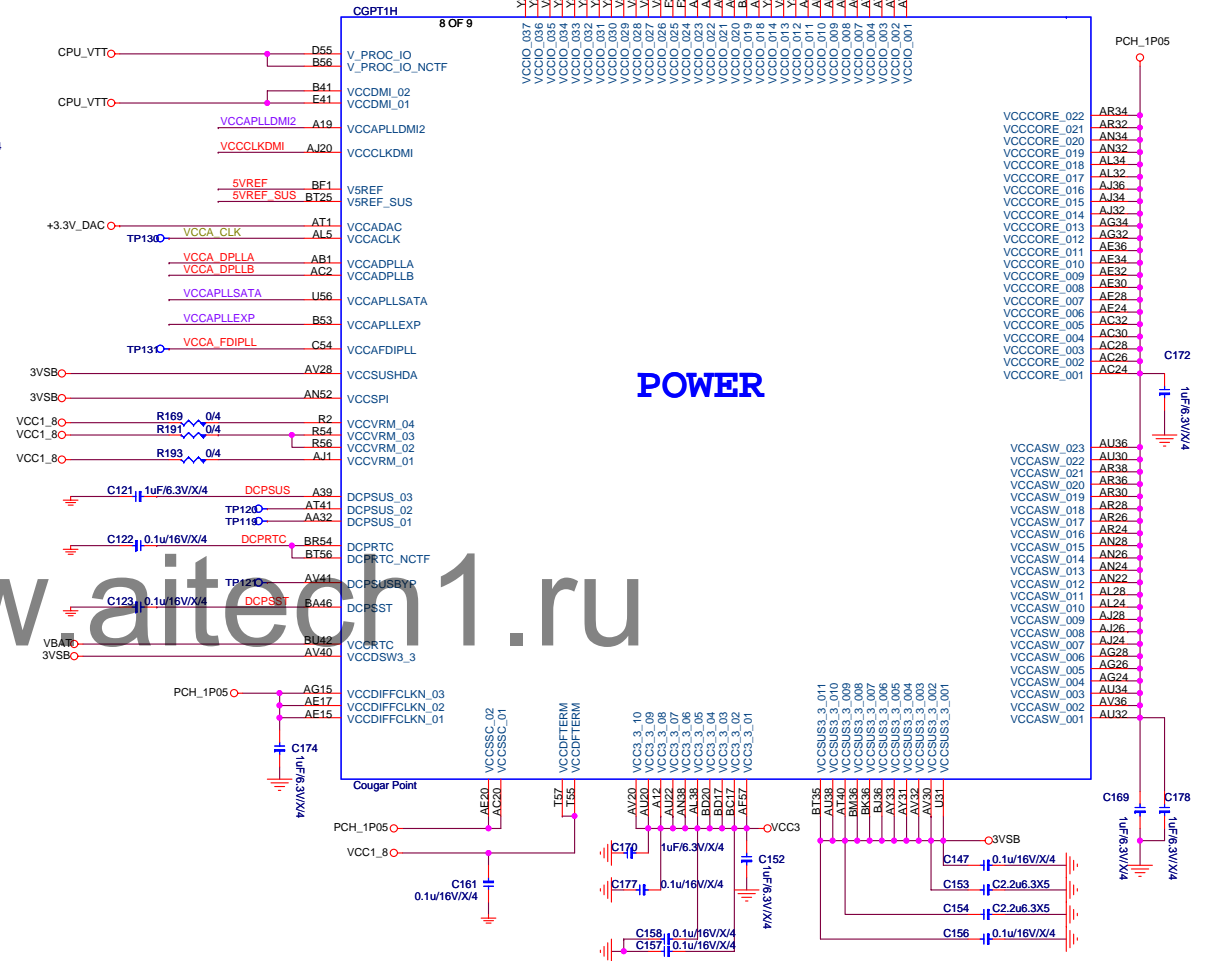
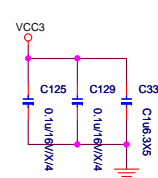
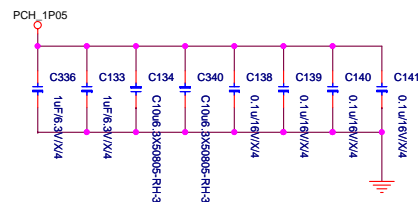
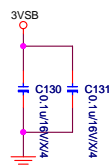
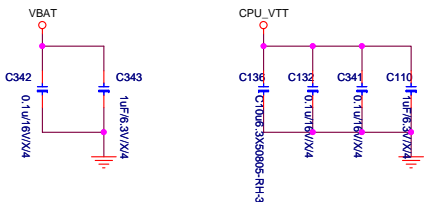
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The schematic diagram illustrates the power supply network for the PCH_1P05 pin. It shows the following components and connections:

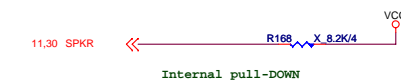
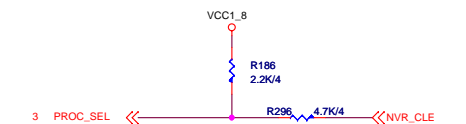
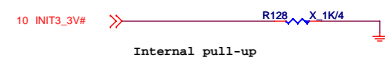
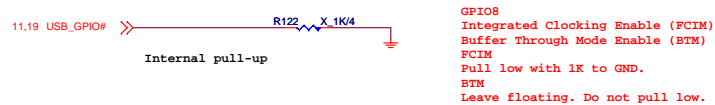
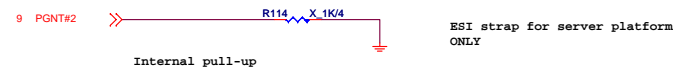
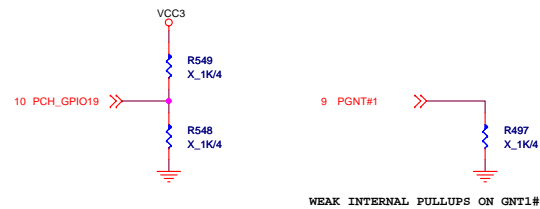
- VCCAPLLDMI2:** Connected to PCH_1P05 via resistor R194 (0/8). Decoupling capacitors C195 (X_10uF/6.3V/X5R/8) and C146 (X_1uF/6.3V/X5R/4) are connected to ground.
- VCCQCLDMI:** Connected to PCH_1P05 via resistor R196 (0/8). Decoupling capacitors C197 (C10u6.3X50805-RH-3) and C196 (1uF/6.3V/X/4) are connected to ground.
- VCCA_DPLL:** Connected to PCH_1P05 via resistor R187 (0/8). Decoupling capacitor C108 (1uF/6.3V/X/4) is connected to ground.
- VCCA_DPLL:** Connected to PCH_1P05 via resistor R188 (0/8). Decoupling capacitor C109 (1uF/6.3V/X/4) is connected to ground.
- VCCAPLLEXP:** Connected to PCH_1P05 via inductor L28 (X_L1U_500mA_0805). Decoupling capacitors C114 (X_10uF/6.3V/X5R/8) and C198 (X_1uF/6.3V/X5R/4) are connected to ground.
- VCCAPLLSATA:** Connected to PCH_1P05 via inductor L29 (X_L1U_500mA_0805). Decoupling capacitors C115 (X_10uF/6.3V/X5R/8) and C116 (X_1uF/6.3V/X5R/4) are connected to ground.



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Size Custom	Document Description PCH -POWER	Rev A00
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BOOT DEVICE	GNT1	SATA1GP/GPIO19
LPC	0	0
PCI	0	0
SPI	1	1



INTVRMEN
0: DISABLE INTERNAL VRM
1: ENABLE INTERNAL VRM *

When these voltage regulators are enabled, the integrated GbE only operates at 10/100 Mbps during S3-S5.

DSWVRMEN
0: Disable Internal Deep Sleep 1.05 V regulators.
1: Enable Internal Deep Sleep 1.05 V regulators.

This signal enables the internal Deep Sleep 1.05 V regulators. Must be connected even when not supporting DSW.

HDA_SYNC
On die PLL VR voltage selector

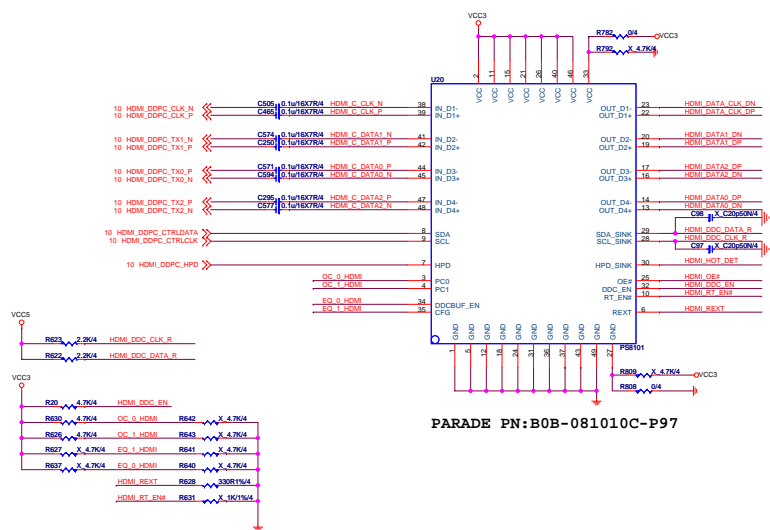
GPIO15
Default (Disable TLS):
Leave NC. Internal pull down.

DMI/FDI TERMINATION VOLTAGE
AC COUPLED: TX SET TO VCC/2, RX SET TO VSS REGARDLESS OF THIS STRAP
DC COUPLED: TX/RX TO VSS IF SAMPLED LOW
DC COUPLED: TX/RX TO VCC ISF SAMPLED HIGH

No Reboot Mode with TCO Disabled:
Connect to Vcc3_3 with 8.2k-10k Ohm weak pullup resistor.

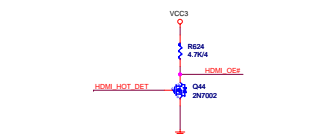
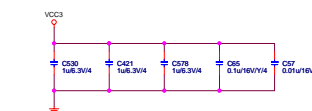
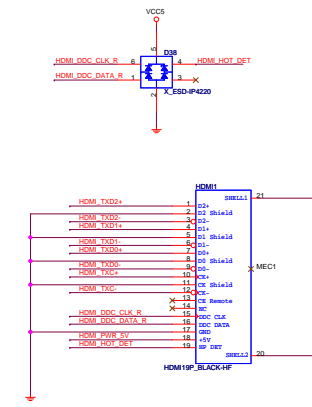


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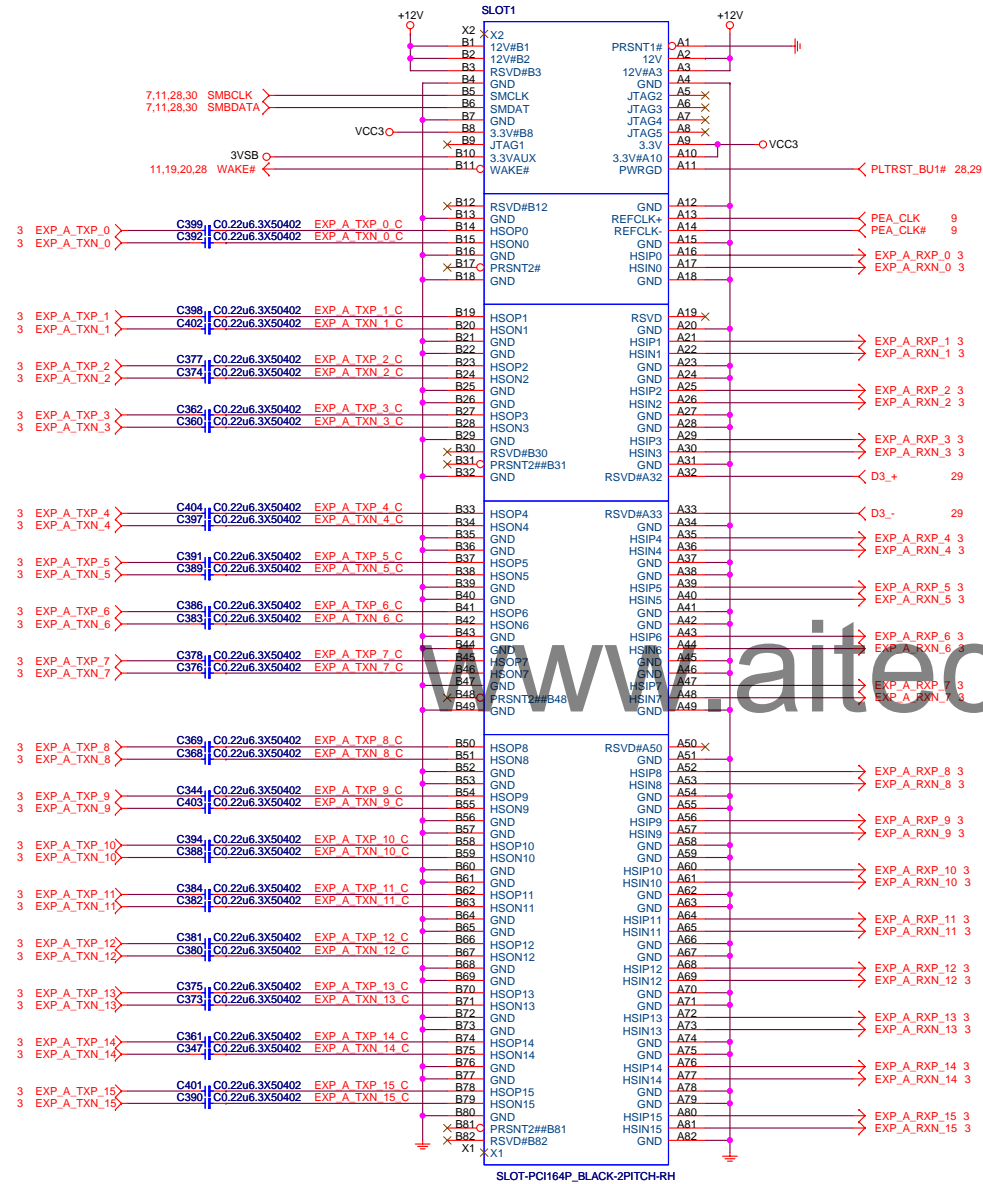


	"0"	"1"	note
DDC_EN	DDC level shifter disable	DDC level shifter enable	internal pull-up at ~500K ohm.
RT_EN#	input 50 ohm termination resistor enable	the input termination resistors are set to high impedances	internal pull-down at ~500K ohm.
OE#	enable	the chip is power down and input termination resistors will be at high impedance.	internal pull-down at ~500K ohm.
HPD_SINK	disable	enable	internal pull-down at ~200K ohm; 5V tolerant.
DDCBUF_EN	For DDC level shifting configuration, please refer to Table.		internal pull-down at ~500K ohm.
REXT			analog current generation.

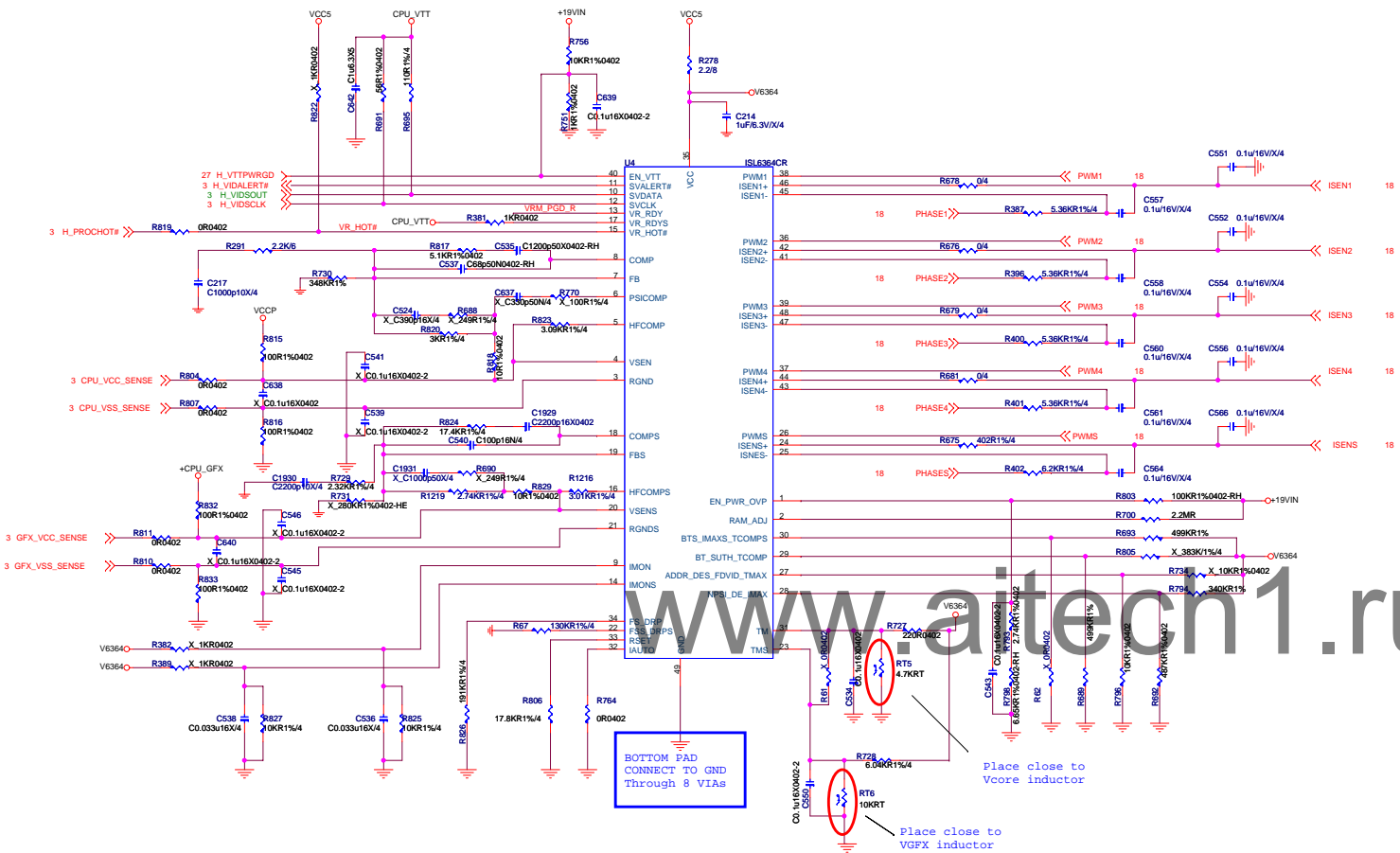
DDC_EN, DDCBUF_EN, OE#	DDC Passive Switch	DDC Active Buffer	PC1, PC0	note
1, 0, X	On	Off	00	8 dB
1, 1, 0	Off	On	01	4 dB
1, 1, 1	Off	Off	10	12 dB
0, X, X	Off	Off	11	0 dB



PCI EXPRESS X16 SLOT



VOLTAGE REGULATOR MODULE (VRD12)

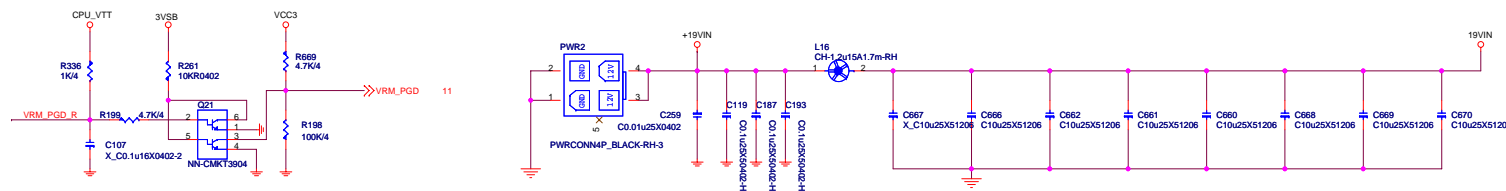


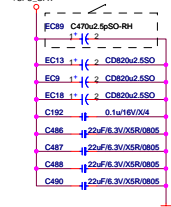
BOTTOM PAD
CONNECT TO GND
Through 8 VIAS

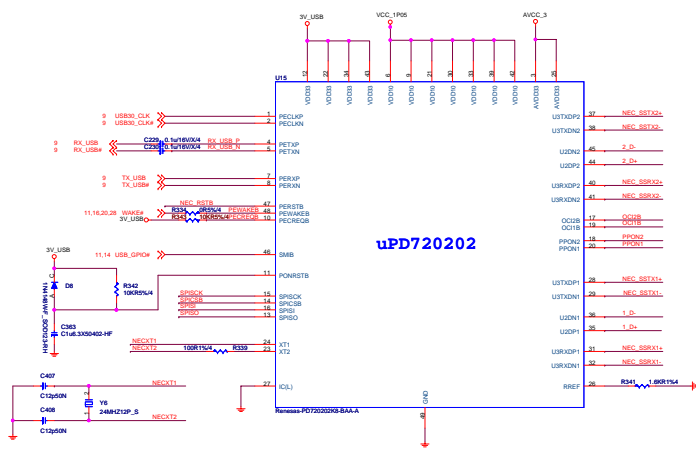
Place close to
Vcore inductor

Place close to
VGFX inductor

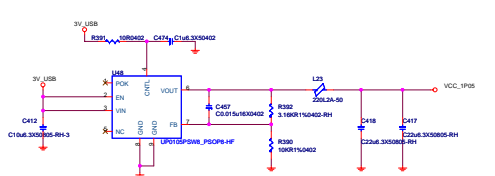
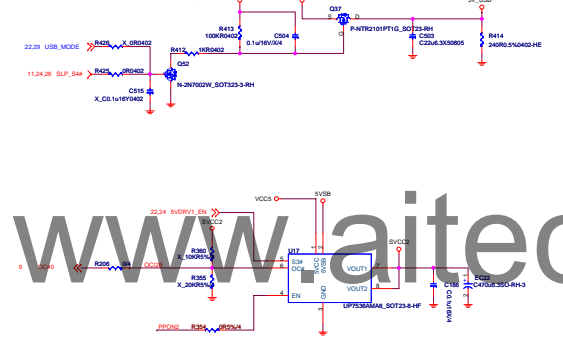
VRMPWRGD LEVEL SHIFT



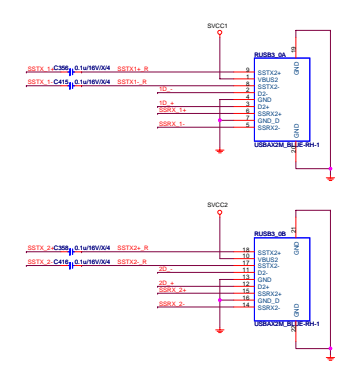




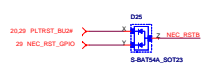
3V Dual Circuit



REAR USB3.0 Connector

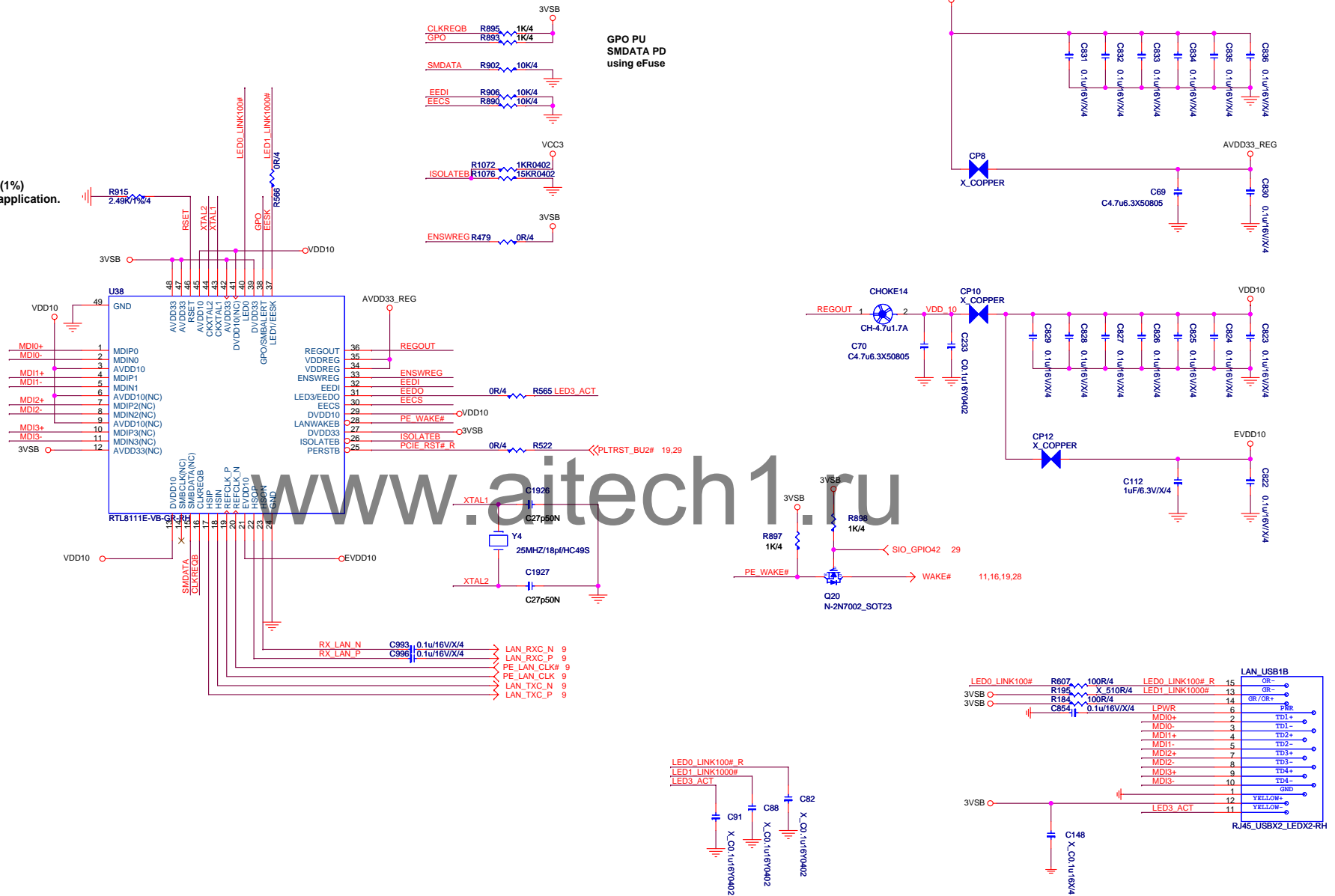


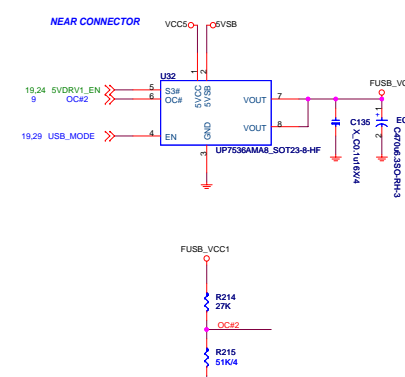
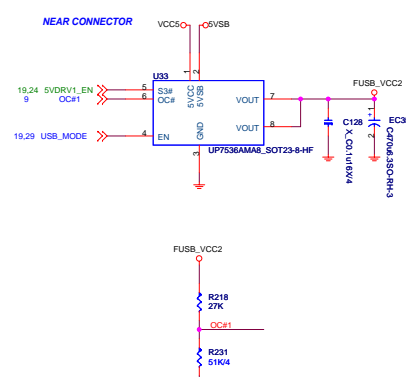
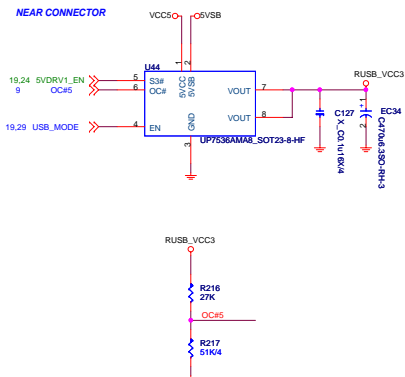
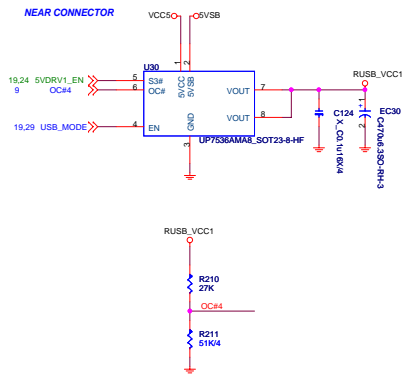
EEPROM



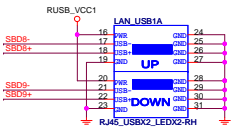
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2.49K (1%)
for all application.

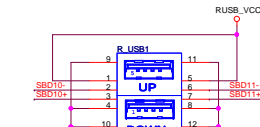




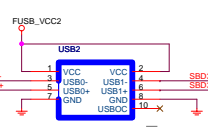
REAR USB PORT 6,7



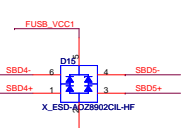
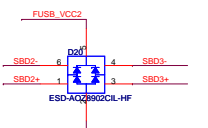
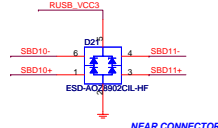
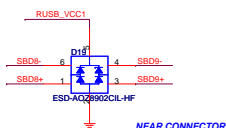
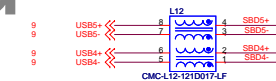
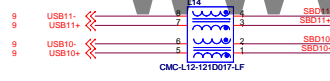
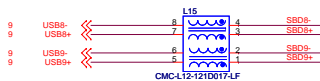
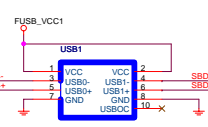
REAR USB PORT 10,11

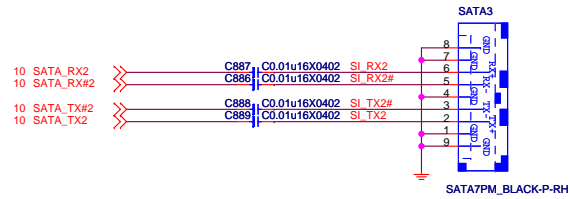
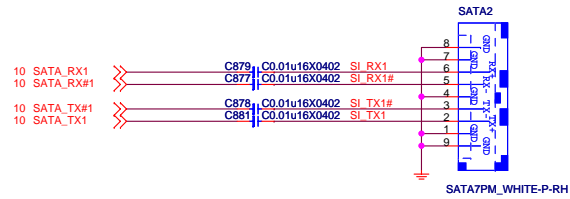
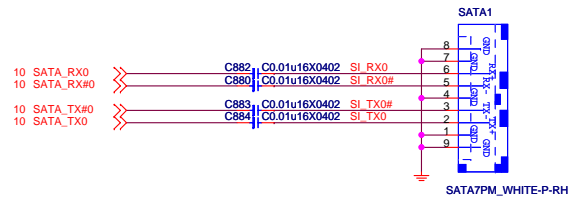


Front USB PORT 2,3

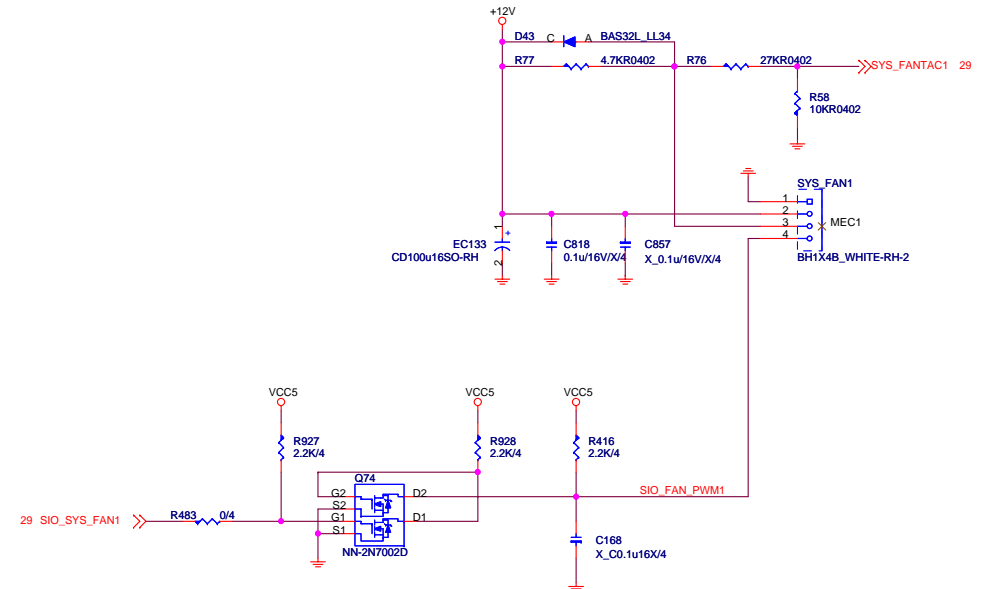


Front USB PORT 4,5

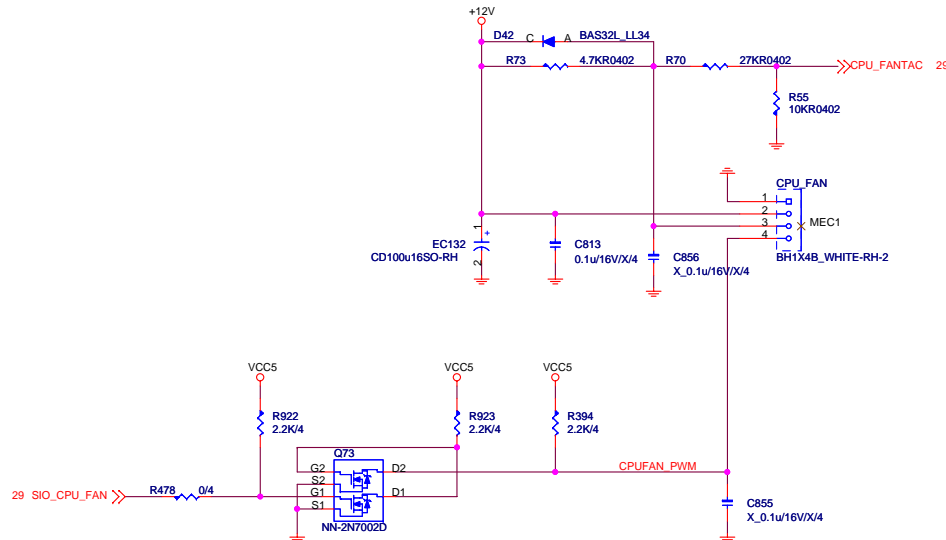




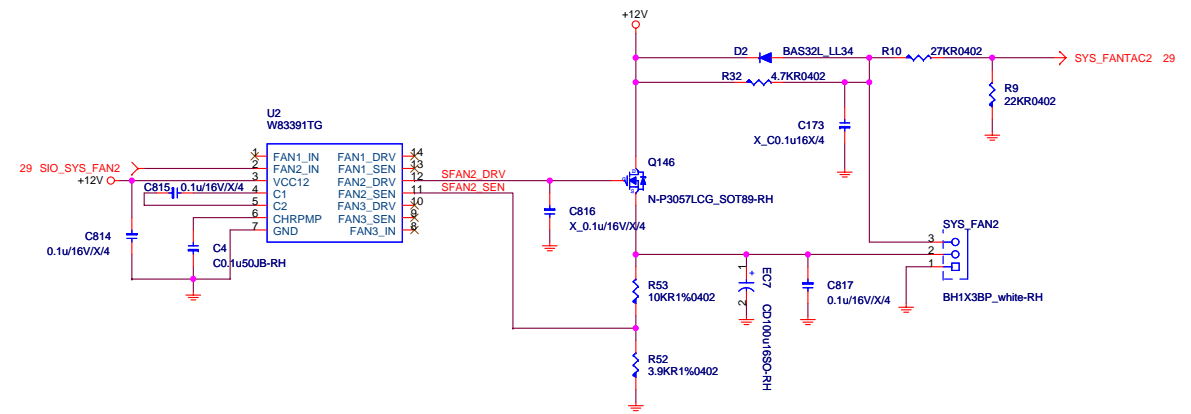
SYS Fan 1



CPU Fan



SYS Fan 2



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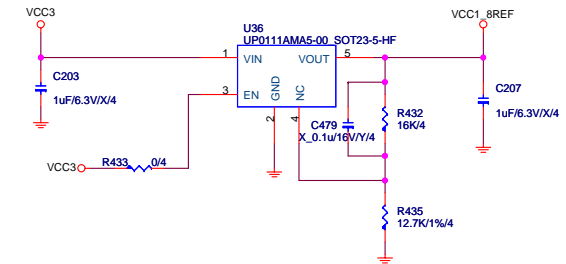
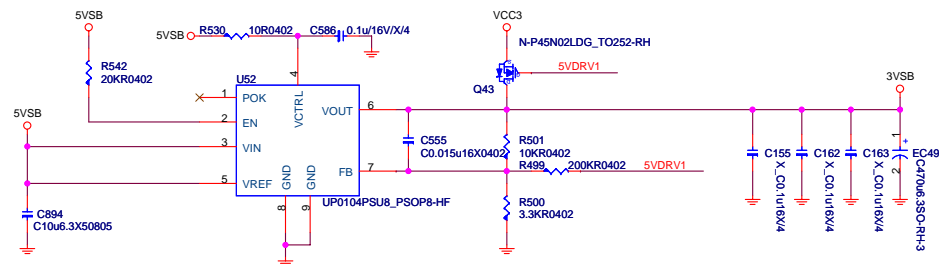


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VCC1_8REF

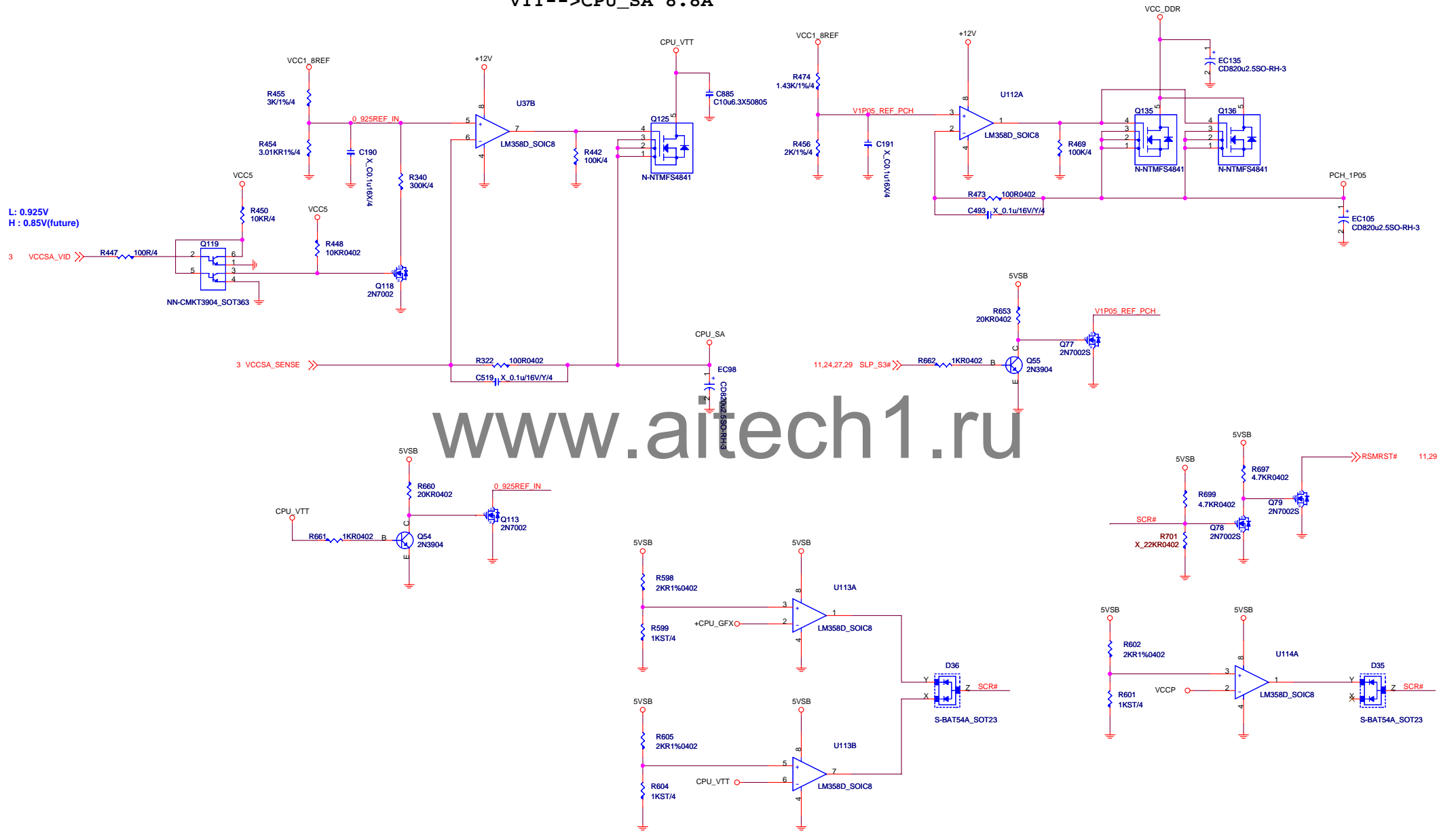
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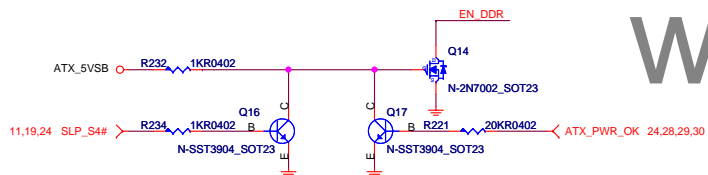
Size Custom	Document Description ACPI Controller UPI	Rev A00
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VTT-->CPU_SA 8.8A

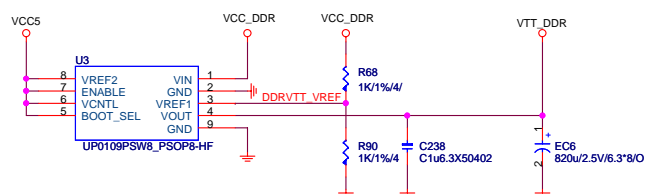
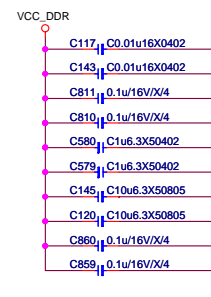
DDR-->PCH 6.2A



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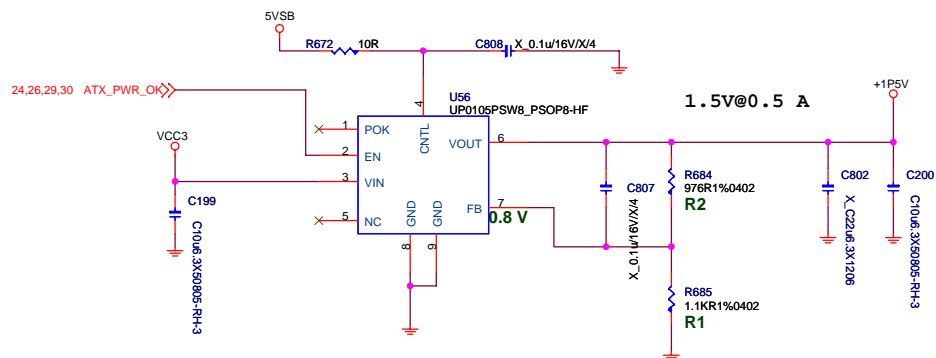
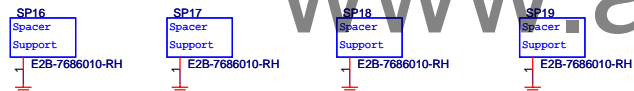
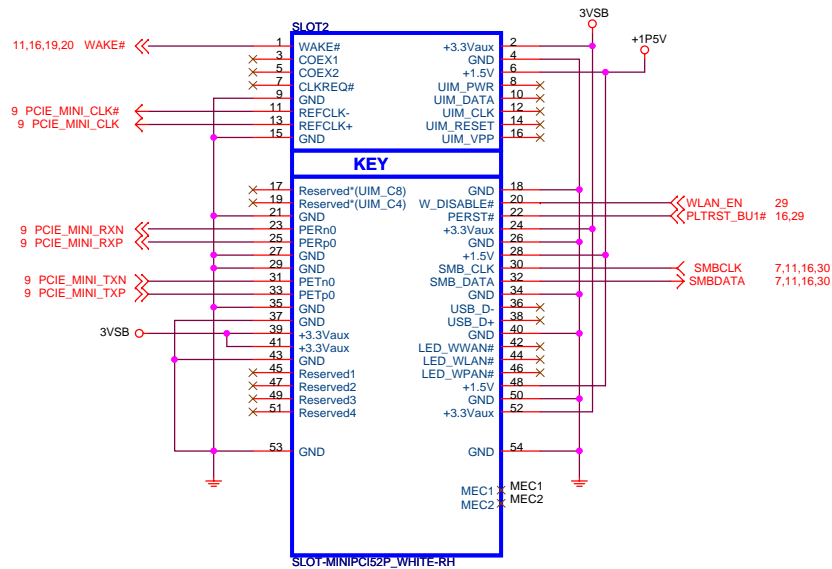


To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .



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Size Custom	Document Description DDR POWER-NCP1587 1-Phase	Rev A00
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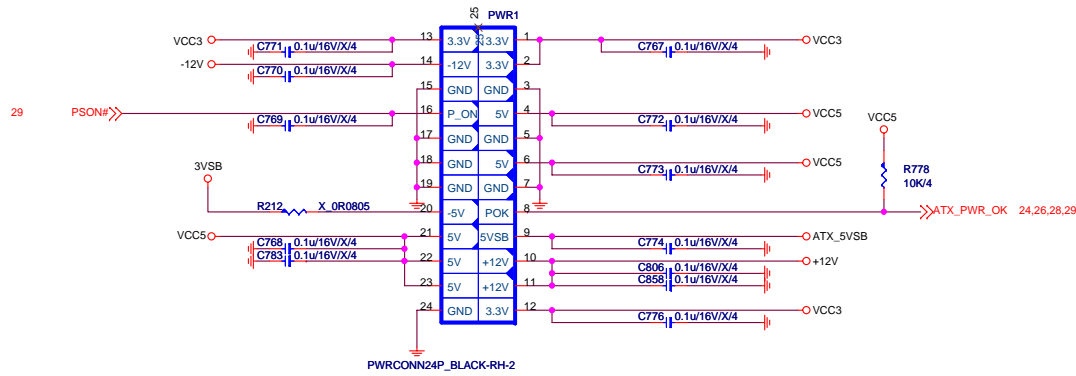


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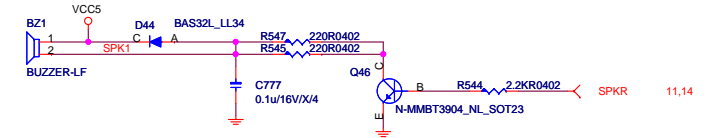
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ATX POWER CONNECTOR

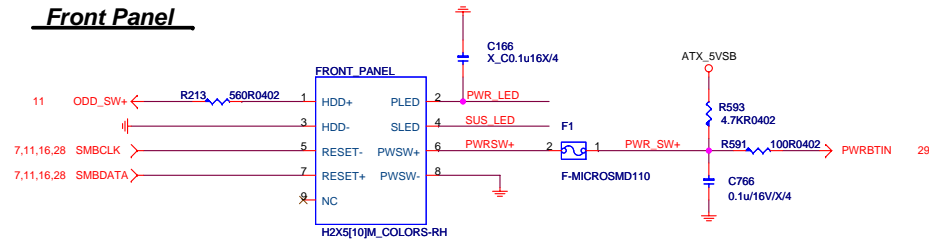


Buzzer Circuit

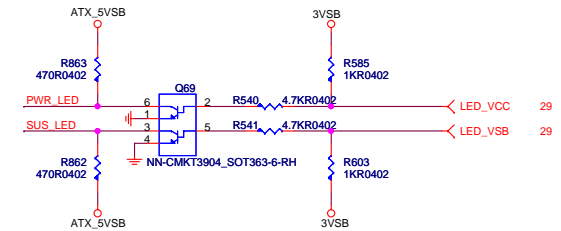


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Front Panel



Power LED



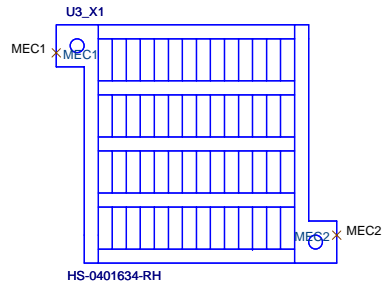
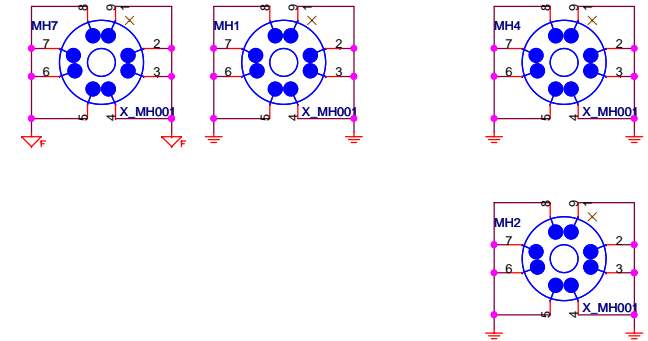
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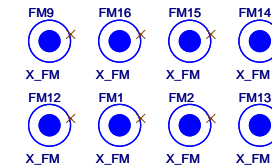
Size	Document Description	Rev
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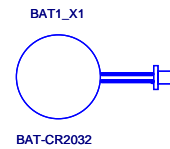
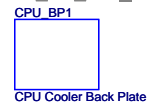
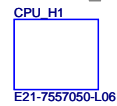
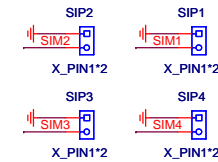
Mounting Holes



Optical Fiducial Marks-120



Simulation




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